

THE DERMAPTERA (EARWIGS) OF THE UNITED STATES NATIONAL MUSEUM.

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The opportunity of examining the collection of Dermaptera (Earwigs) in the United States National Museum has been a very great privilege to me. It has enabled me to see the types of many of the American species at a time when an examination of most of the types of the European collections has been fresh in my memory. In several instances I have actually been able to compare the types of Caudell and Rehn with those of older European authors. Consequently I have been able to correlate the work done in recent years in America with that done by European authors. When we remember that of all the types of earwigs in existence, with the exception of those of Scudder, Caudell, and Rehn, are preserved in European collections, the importance of this opportunity will be realized.

The Dermaptera are not an easy group, and the difficulty is increased by the fact that no satisfactory general comprehensive account based upon a thorough examination of original specimens has yet been published; for de Bormans' Monograph has numerous imperfections, and is already long since out of date. So few species have been well illustrated that it is of the utmost importance that authentic collections be compared. It is the remoteness of the museums of England, Paris, Vienna, Berlin, etc., that is responsible for such errors as have crept into the work of the American authors. Knowing only too well the difficulties in dealing with such a group, when our total knowledge is so imperfect, the classification in a state of flux, and the material available relatively so small, I can not suppress my surprise that the work of the American authors is so good.

Several years of friendly correspondence with Prof. Lawrence Bruner and Messrs. Scudder, Rehn, and Caudell has thus been crowned with an actual examination of the material on which they worked, so that the friendship grown up in spite of the intervening seas has been carried to its logical conclusion.

I hope that this account of an European entomologist's examination of American material may be of real use in correlating the labors of the workers in the Old and New Worlds.

My sincere thanks are due the officers of the United States National Museum for so kindly admitting me to an examination of this material at my own convenience, and to my friend, Mr. A. N. Caudell, for his unwearying assistance and courtesy.

Subfamily APACHYIDÆ.

Genus APACHYUS Serville.

1. DEPRESSUS Palisot de Beauvois.

Africa.—Liberia, Mount Coffee, March, 1897, two females (R. P. Currie). "More in spirits."

Both these are the true *A. depressus*, with pale elytra.

Family PYGIDICRANIDÆ.

Subfamily DIPLATYINÆ.

Genus DIPLATYS Serville.

1. JANSONI Kirby.

Guatemala.—Cacao, Trece Aguas, Alta Vera Paz, March 26 and 31, 1907 (Schwarz and Barber). [The original two females quoted by Caudell, 1907², p. 170.]

2. SEVERA Bormans.

Guatemala.—Cacao, Trece Aguas, Alta Vera Paz, April 13 to 21, 1906, male and female (Schwarz and Barber). [Caudell, 1907², p. 169.]

Subfamily KARSCHIELLINÆ.

Genus KARSCHIELLA Verhœff

1. CAMERUNENSIS Verhœff.

Congo.—Luebo (Dr. W. Snyder).

The specimen is recorded by Rehn [1905¹, p. 504] as *Bormansia meridionalis* Burr. The specimen is not mature, but it is more probably referable to *K. camerunensis* or else to *K. neavei* Burr, both of which are West African forms. *B. meridionalis* is recorded from Transvaal.

Subfamily PYGIDICRANINÆ.

Genus PYGIDICRANA Serville.

1. V- NIGRUM Serville.

Brazil.—Bonito Province, Pernambuco, January 17, 1883 (Koebele). One female and one broken specimen.

Family LABIDURIDÆ.

Subfamily ALLOSTETHINÆ.

Genus ALLOSTETHUS Verhœff.

1. INDICUM (Hagenbach).

Lower Siam.—Khow Sai Dow, Trong. 1,000 feet elevation. January-February, 1899 (W. L. Abbott). (Cat. No. 8167.)

This is the type of *Labidurodes magnificus* Rehn [1905¹, p. 504, fig. 3], which must accordingly fall as a synonym.

Subfamily PYRAGRINÆ.

Genus PYRAGRA Serville.

1. FUSCATA Serville.

Costa Rica.—San Carlos (Schild-Burgdorf). Fragment. [See Rehn, 1903², p. 299.]

British Honduras.—Bengue Viejo, July, 1904 (W. A. Stanton).

I also refer here, with a little hesitation, Rehn's type of *Echinopsalis brevibractea* [1903², p. 300], taken by G. H. Osborn in Mexico, Motzorong, Veracruz, January, 1892. (Cat. No. 7078.) The specimen is immature, and consequently the specific characters are not properly developed. But it has a superficial appearance of this species or else of the *P. dohrni*.

P. fuscata is recorded from Mexico by de Bormans, Dohrn, and Burr.

I agree with Rehn in restoring Serville's name for this species.

2. DOHRNI Scudder.

Peru.—Piches and Perene valleys, 2,000 to 3,000 feet. (Cat. No. S171.)

This is Rehn's type of *Pygidicrana peruviana* [1905¹, p. 501], a female, so that name consequently falls as a synonym.

3. BUSCKI Caudell.

Cuba.—Baracoa, October 14, 1901 (Busck), one male. Type of Caudell [1907¹, p. 166]. (Cat. No. 10288.)

Jamaica.—"In rotten palm," March 18, 1907 (W. Johnston).

This is a good species; it is related to *P. paraguayensis* Borelli and *P. brunnea* Burr, differing from both in the nearly glabrous body and absence of keels on the upper surface of the last dorsal segment.

This group differs from that of *P. fuscata* in the transverse pronotum.

ARTHROEDETUS BARBERI Caudell.

Guatemala.—Polochic River (H. S. Barber). (Cat. No. 10366.) Type of Caudell [1907², p. 171].

The apparently anomalous features of this creature are due to the immaturity of the specimen; the very long third antennal segment is a well-known characteristic of nymphs and larvæ; Terry (1905) has shown that the apical segments all grow out of the third, which is consequently extra long in immature specimens. The features of the thorax are explainable in the same way.

It is impossible to say to what species it should be referred; very likely to *Pyragra fuscata* Serville, or some ally.

Genus ECHINOPSALIS Bormans.

1. GUTTATA Bormans.

Paraiso, Canal Zone (P. B. Preston).

A single female, with the abdomen broken off and cemented on again upside down.

Guatemala.—Cacao, Trece Aguas, Alta Vera Paz, April 23 (Barber). This larva seems to be referable here. It is quoted by Caudell as *Psalis*, species [1907², p. 172].

Subfamily ECHINOSOMATINÆ.

Genus ECHINOSOMA Serville.

1. WAHLBERGI Dohrn

Africa.—Liberia, Mount Coffee (R. P. Currie), one female.

Subfamily PSALINÆ.

Genus PSALIS Serville.

1. PULCHRA Rehn.

Nicaragua.—1873, one male. "Accession 13755."

Trinidad.—One male (Busek). Caudell's specimen [1907¹, p. 167].

Caudell [1907¹, p. 167], tells us that *Labia pictipennis* of Bruner (1906) is a synonym. It is very close to *P. rosenbergi* Burr. The color, especially of the latter, is so variable that I can only find the hairy body and blunter angles at the sides of the sixth to the ninth abdominal segments of the male to distinguish the latter. *P. pulchra* is probably identical with *P. percheron* Guerin.

2. AMERICANA Palisot de Beauvois.

Colombia.—Bogota, one broken specimen.

Santo Domingo.—San Francisco Mountains, September, 1905 (Busek), two females (see Caudell, 1907¹) with the spot of the elytra ill-defined, ocher yellow in color.

Cuba.—Cayamas (Schwarz).

Immature specimens of most or all species of this genus may be, and probably often are, confused with *Anisolabis*, as Rehn rightly suggests [1903², p. 301].

3. GAGATINA Klug.

Porto Rico.—Utuado, January, 1899 (Busek), and El Yunque (Dr. C. W. Richmond).

Santo Domingo.—San Francisco Mountains, September, 1905 (Busek). [Caudell, 1907¹, p. 170.]

These are the specimens recorded by Rehn as *Apterygida buscki* [1903⁴, p. 129; type!] and by Caudell as *Sphingolabis buscki* [1907, p. 170]. They only differ in their smaller size and slenderer build from Peruvian and Ecuadorian specimens of *Psalis colombiana* Bormans, which is identical with *Carcinophora robusta* Scudder, which, in my opinion, is indistinguishable from *Psalis gagatina* of Burmeister, a species about which no one has felt certain hitherto. I consider that the genus *Carcinophora* coincides with *Psalis*, as the only character, absence of wings, is valueless. *A. buscki* would then be an insular, somewhat stunted, race. The finest specimens known are those recorded by Borelli from Costa Rica; some of these have a small yellowish spot near the lateral margin of the elytra; this repre-

sents the transition to *P. americana*. The specimen figured by de Bormans [1903, pl. 1, fig. 5] has spotted elytra, and is probably referable to *P. americana* or *P. pulchra*.

4. *CINCTICOLLIS* Gerstæcker.

Africa.—Liberia, Mount Coffee, three males and one female (R. P. Currie).

I have recently shown [1909⁵, p. 113] that *Brachylabis cincticollis* of Gerstæcker is the nymph of *Psalis picina* Kirby, so the true name of this species is *Psalis cincticollis* (Gerstæcker).

5. *NIGRA* Caudell.

Trinidad.—Montserrat, July 4, 1905; a single female taken by Busck. (Cat. No. 10290.) Caudell's type (1907¹), p. 167.

It is unfortunate that the male is unknown. The almost square pronotum, rounded posteriorly, and the short, thick antennal segments are the most distinctive features.

It appears to be allied to *P. gagatina* Bormans and the African *P. cincticollis* Gerstæcker.

Genus *ANISOLABIS* Fieber.

1. *ANNULIPES* Lucas.

Mexico.—One female.

Mexico.—Minatilan, February 1, 1902 (H. Osborn), one female. [See Rehn, 1903², p. 304.]

Mexico.—(Duges), two females. One specimen is determined by Rehn as *A. antoni* Dohrn, but I consider that species identical with *A. annulipes* Lucas. [See Rehn, 1903², p. 305.]

Paraguay.—Sapucay (W. F. Foster). Caudell's originals of *A. azteca* [1904, p. 180], which I also consider synonymous with *A. annulipes*, as has been suggested by Rehn [1906, p. 109].^a

Hawaii.—Honolulu, three males, five larvæ (Kotinsky).

California.—(C. V. Riley), one female.

Algeria.—"On a date palm;" labeled "*An. mauritanica* Lucas, I believe."

Guatemala.—Chiantla, one female.

Cuba.—Baracoa, one male, September (Busck). [Caudell, 1907¹, p. 168.]

Porto Rico.—Fajardo (Busck). A fine female. [See Rehn, 1903¹, p. 129.]

Florida.—Crescent City (C. V. Riley), one male. "New Orleans, La" (Shufeld) (C. V. Riley), one female.

Guadeloupe.—*A. bormansi*, Scudder's type; female, Guadeloupe, undoubtedly referable here; agrees with Caudell and Rehn.

^aI have since seen Dohrn's types of *A. azteca*; it is a good species, probably a *Gonolabis*: the so-called *A. azteca* of literature are, however, probably all referable to *A. annulipes*: Dohrn's type of *A. antoni* is certainly indistinguishable from *A. annulipes*.

Arizona.—Yuma, August 16, 1902 (Brown), one female.

Trinidad.—(Busck), one female. "*A. antoni*." [Caudell, 1907¹, p. 168.]

2. *XENIA* Kirby.

Hawaii.—(Henshaw), one male, determined as *A. maritima*.

Hawaii.—Tantalas, one male (Kotinsky): also determined as *A. maritima*.

This is a little known species. In the brown head and pronotum it approaches *A. littorea*, but the excavate forceps are distinctive.

3. *PLUTO* Rehn.

Liberia.—Mount Coffee (O. F. Cook). Cat. No. 8165. Rehn's type. [See Rehn, 1905¹, p. 506, fig. 4.]

Being a female, it is impossible to define its true affinities: perhaps it is the female of *A. rufescens* Kirby.^a

4. *MARITIMA* Bonelli.

Canary Islands.—Teneriffe, Bayamas, two females. (I am inclined to think that one of these is a female of *A. maxima* Brullé.)

New Zealand.—One female and a larva (Koebele).

Santo Domingo.—San Francisco Mountains, one female.

Porto Rico.—Bayamon, January, 1899, two males (Busck). One is unusually small. [See Rehn, 1903¹, p. 129.]

Japan.—Two males and one female.

5. *MARGINALIS* Dohrn.

Japan.—Two males and one female.

These appear to be the true *A. marginalis* of Dohrn, but the sculpture of the abdomen is not very well marked.

Genus *BORELLIA* (Burr).^b

1. ——— Species.

Nicaragua.—"Accession No. 26695."

This specimen is incomplete; it is a large species, perhaps related to *B. peruviana* Bormans, but not so intensely black as that species.

2. *JANEIRENSIS* Dohrn.

Porto Rico.—Utado, January, 1899 (Busck), [Caudell, 1907¹, p. 168], one female.

Jamaica.—"In rotten palm." March 19, 1907 (J. R. Johnston), No. 22, one female.

3. *MINUTA* Caudell.

Porto Rico.—Mayaguez, one female (Busck). [Syntype of Caudell, 1907¹, p. 168.]

^a I have since seen the type of Dohrn's *A. angulifera*; it is the male corresponding to *A. pluto*. I am not yet prepared to discriminate satisfactorily between this species and *A. annulipes*.

^b This name is preoccupied by *Borellia* Rehn, Proc. U. S. Nat. Mus., vol. 30, 1906, p. 379, so a new name is required. I propose *Euborellia*.

This species seems indistinguishable from the Oriental *B. stali* of Dohrn, of which it is probably an introduced specimen. The one examined is a little broader than the usual *B. stali* and less intensely black in color.

Subfamily LABIDURINÆ.

Genus LABIDURA (Leach).

1. RIPARIA Palisot de Beauvois.

British Honduras.—Bengue Viejo (W. A. Stanton), one female, 1906. This dark specimen is labeled "*Forficula smithi* female?," and also "*Psalis*."

Mexico.—Oaxaca, Rio Antonio, one female (F. Knab); "Mat XI," one female. (Accession No. 20097.)

Mexico.—Cordoba, one male, April 24, 1908 (F. Knab).

Japan.—Three males.

England.—Hants Christchurch, August, 1904, male and female (W. J. Lucas), one female (C. V. Riley). "*Gigas* of Eur."

Africa.—Kongo Free State, "39," one male. Luebo, one female and one larva (Dr. W. Snyder), see Rehn [1905¹, p. 502].

Porto Rico.—Fajardo, February, 1899, one female (Busek) [see Rehn, 1903¹, p. 129], one male and three larvæ.

Bermuda.—"Accession No. 17400." Three determined as *L. bidens* by Rehn, who provisionally follows Kirby's arrangement of this species or group of species.

Java.—Buitenzorg, one dark female, April-December, 1897 (Fairchild).

China.—Pekin, Chilli, April, 1901, Cat. No. 8164. Rehn's type of *Labidura mongolica* [1905¹, p. 503]. It is a male, and not specifically distinct from typical *L. riparia*, though a fine large form. This species darkens rapidly after death.

Cuba.—Cabanas (Palmer and Riley), "*L. bidens*."

2. LIVIDIPEs Dufour.

Philippines.—Bay Laguna (P. Stangl). Several specimens of both sexes (four males, three females). Bacor, one male, three females (P. Stangl). Balinag, male (A. P. Ashby).

Subfamily BRACHYLABINÆ.

Genus LEPTISOLABIS Verhoeff.

1. HOWARDI, new species.

Staura minore, gracili; colore atro, antennis pedibusque pallescentibus, corpus totum confertim punctulatum; oculi magni, marginem posticum capitis fere attingentes; pronotum elongatum et postice ampliatus, margine antico in collem productum; forcipis brachia maris cylindrica, basi haud contigua, sensim arcuata.

Male.—Length of body 8 mm.; length of forceps 1.75 mm. Size small and slender.

Color jet black, dull. The whole body clothed with long golden pubescence. The whole surface finely punctulate.

Antennae with thirteen segments, brownish gray, all the segments very thick, third scarcely longer than broad, fourth really broader than long; fifth globular, the rest gradually lengthening and also thickening.

Head tumid, hinder margin straight, sides convex, and in front triangular; the small marks on the frons indistinct. The punctulations are exceedingly fine.

The eyes are very large and prominent, ovate in shape, and extend from the insertion of the antenna almost to the posterior margin of the head, gently converging posteriorly.

Pronotum about one and one-half times as long as the average breadth, all margins straight, sides gently diverging as the pronotum widens somewhat posteriorly. The anterior margin has the middle portion produced slightly, and carries a short but distinct cylindrical neck, so that the head is distinctly separated from the pronotum. Mesonotum transverse, posterior margin truncate; sides not keeled, but raised with blunt, tumid ridges converging posteriorly. Metanotum strongly concave posteriorly, almost entirely covering the first abdominal segment.

The whole of the thoracic plates are dull black and densely and finely punctulate.

The prosternum is twice as long as wide, parallel.

Mesosternum and metasternum somewhat broader than long, the posterior margin truncate; sternal plates reddish black and densely and finely punctulate.

Legs typical, femora slender, black, yellow at the base and apex, long and slender.

Tibiae long and slender, yellowish.

Tarsi yellowish, long and slender. The second segment elongate and cylindrical, nearly as long as the third; the first is longer than the second and third combined.

Abdomen typical, of the same color and sculpture as the rest of the body, passing to reddish beneath; lateral tubercles on third and fourth segments faint. Last dorsal segment very short and transverse, but narrower than the abdomen; posterior margin narrowed, and concave in the middle, leaving a short triangular lobe on each side projecting slightly over the forceps.

Penultimate ventral segment short and broad, very obtusely rounded.

Pygidium short, very narrow, and compressed.

Forceps with the branches remote at the base, cylindrical, tapering, straight at first, gently arcuate toward the apex.

Guatemala.—Provincia de Alta Vera Paz, Trece Aguas, Cacao, April 19 (Schwarz and Barber). (In U. S. National Museum.)

Type.—Cat. No. 13087, U.S.N.M.

Named in honor of Dr. L. O. Howard, of the Department of Agriculture.

This is the original specimen recorded by Caudell from Guatemala [1907, p. 172] as *B. nigra*. Owing to the distance from Peru, I was not surprised to find that this specimen is distinct. The true *B. nigra* is a *Ctenisolabis* with a keeled mesonotum; this specimen, having no sharp keel on the mesonotum, is a *Leptisolabis*. I have not been able to compare it with the types of Verhoeff's African species, but a Neotropical and an Ethiopian species of scarce archaic, apterous earwigs are not likely to be confused.

All the *Brachylabinae* have a strong family likeness; at first glance, *L. howardi* looks like *B. nigra*, but the non-keeled mesonotum distinguishes it at once; the fourth to sixth antennal segments are shorter and the pronotum longer. It is more difficult to separate from *L. punctata*, from Java, but it is smaller and slenderer, the sculpture is finer, and the antennal segments shorter.

Probably some other species are confused in collections under the name of "*Brachylabis nigra*."

Family LABIIDÆ.

Subfamily NESOGASTRINÆ.

Genus NESOGASTER Verhœff.

1. RUFICEPS Erichson.

Australia. One nymph (Kæbele).

Subfamily LABIINÆ.

Genus LABIA Leach.

1. SILVESTRII Borelli.

Paraguay.—Puerto Bertoni. (Cat. No. 8303.)

This specimen, a female, is a syntype of Borelli, sent from Turin to be compared with the type of *L. paraguayensis* Caudell. It approaches that species in the form of the pronotum and antennæ, but the segments of the latter are rather strongly pyriform than conical; the abdomen also is parallel and not dilated. The forceps and pygidium are also somewhat different in both sexes.

2. UNIDENTATA Palisot de Beauvois.

This species was originally described by Palisot de Beauvois from Santo Domingo; Bolivar has since applied the name to specimens from Cuba. *Labia burgessi* Scudder, from Texas, appears to me to be the same thing, with abbreviated wings. Experience has shown over and over again that the abbreviation of the wings is a very common condition among earwigs, and is absolutely valueless as a specific character, although it somewhat alters the superficial appearance of the specimens. Now, I consider that the various specimens examined by me, from Cuba, Florida, Texas, Santo Domingo, Georgia, and St. Vincent, are all one and the same species, offering certain variation within determined limits, as is frequently the case

in other earwigs. This variation consists, in addition to the abbreviation of the wings already referred to, of the strength of the teeth of the male forceps, intensity of coloration from light reddish brown to blackish castaneous, and size. As *L. unidentata* is the earliest name which seems applicable to the species, I accept it and sink as synonymous also the following names: *L. guttata* Scudder, *L. melancholica* Scudder, and *L. pulchella* Serville. None of the descriptions show any valid specific characters for discriminating these species, and as the burden of proof lies with the describer, they may be safely, until such time as some further author, with ample material and a complete familiarity of the group, shall prove them to be distinct.

L. pulchella Serville [1839, p. 42], from New York, is fully winged; so is *L. guttata* Scudder [1876³, p. 265], from Texas; it is true Scudder compares his type with *L. pulchella*, but he does not succeed, in my opinion, in making a good case. It should be possible to find in the northeastern States specimens agreeing with Scudder's description of *L. guttata* from Texas.

L. melancholica Scudder [1876³, p. 267], also from Texas, is also a winged form, but the wings have no yellow spots; the male, moreover, is unknown. It is described as a "slender, graceful, and very dark-colored species, related to *L. burgessi*." I possess a dark female from Santo Domingo which agrees with this description. I look upon *L. melancholica* merely as a dark-winged form.

L. burgessi Scudder [1876³, p. 266], described from Florida, is a wingless form, and consequently the appearance is altered; but, structurally, syntypes of Scudder in my collection are not specifically different from Bolivar's specimen of *L. unidentata* from Cuba, nor from specimens from Trinidad, in the U. S. National Museum, determined by Caudell as *L. brunnea*. I possess specimens from Thomasville, Georgia, which are structurally indistinguishable from *L. burgessi*, but much darker in color.

To recapitulate, all the brown nearctic *Labias* should, in my opinion, be regarded as a single variable species; to it we give the oldest applicable name *L. unidentata* Palisot de Beauvois, and sink as synonymous the following: *L. pulchella* Serville [1839, p. 42]; *L. guttata* Scudder [1876³, p. 265]; *L. burgessi* Scudder [1876³, p. 266]; and *L. melancholica* Scudder [1876³, p. 267].

United States.—Florida. (*L. burgessi*) "agrees with a female type in Scudd. coll. A. N. Caudell." North Carolina, Dept. Agric. Entom. Cat. No. 420, "collected and donated by W. F. Fiske." [Caudell, 1901¹, p. 168.] (*L. burgessi*, female.)

Porto Rico.—Aguadilla, "*A. gravidula*" and one female.

Jamaica.—Male, labeled "*L. arachidis*."

Trinidad.—San Francisco Mountains, four males and three females. (*L. pulchella*.)

Cuba.—Cayamas, female (Schwarz). (*L. pulchella*.)

Mexico.—Orizaba, January 9 to 16, 1902 (H. Osborn). Determined by Rehn. One female.

Rehn [1903², p. 305] doubtfully refers this specimen to *L. guttata* Scudder as not quite agreeing with Scudder's description. It is a female, in not very good condition. I prefer to regard it, with some doubt, as a female of *L. unidentata*.

3. *BILINEATA* Scudder.

Guatemala.—Cacao, Trece Aguas, Alta Vera Paz, one male (Barber). [See Caudell, 1907², p. 173.]

4. *ARACHIDIS* Yersin.

"From a ship at San Francisco which arrived from India" (Cat. No. 6588), two males, labeled "*Carcinophora*, sp."

Mexico.—Cordoba, one female, April 26, 1908 (Knab).

Hawaii.—Honolulu, one female (M. van Dine). On label it is suggested that this specimen might be *S. hawaiiensis* Bormans, or *L. pygidiata* Bormans.

5. *ANNULATA* Fabricius.

Forficula annulata FABRICIUS, 1793, p. 4.

Labia annulata REHN.

? *Forficula dorsalis* BURMEISTER, 1838, p. 754.

Labia chalybea DOHRN, 1864, p. 429 (and authors).

Labia arcuata SCUDDER, 1876³, p. 257 (and authors).

Labia flaviscuta REHN, 1903², p. 305.

The above synonymy calls for some comments. I follow Rehn in restoring Fabricius' name, which is perfectly applicable to this species, as de Bormans had noticed (1900, p. 69), in his contention that the mass of doubtful names of older authors should be reduced as far as possible, and that an absolute proof of identity is not necessary where the evidence is fairly strong in favor if so doing, provided that there be no evidence to the contrary. Fabricius' species is recorded from "America meridionalis insulæ." This justifies our use of the name *L. annulata* Fabricius, in place of the more familiar *L. arcuata* Scudder.

Now as to *L. flaviscuta* Rehn. I consider it to be identical with the variety of *L. arcuata* having yellow pronotum, as mentioned by de Bormans (1893, p. 6, and 1900, p. 69). The shorter wings and somewhat longer pronotum of the female, quoted by Rehn to differentiate *L. flaviscuta*, are not, in my opinion, of sufficient value as discriminating characters.

Next, as to the identity of *L. arcuata* with *L. chalybea*. Two of Dohrn's original specimens of *L. chalybea* are in the Vienna Museum and both are from Venezuela; one, apparently a female, has the head and apex of the abdomen missing; it is dull brown in color and strongly pubescent. I can not distinguish it from females of *L. arcuata* Scudder.

The other specimen is also a female; its pygidium is narrow, bluntly conical, with two minute points at the apex. Moreover, the elytra, though bluish, are paler at the shoulders, and strongly pubescent.

Now although the typical *L. arcuata* of Scudder differs rather decidedly from what has always been regarded as *L. chalybea*, I have examined specimens from various localities, which fill in the gap, and in some cases both forms are taken together.

The typical *L. arcuata* form is rather large, broad, with more or less dilated abdomen, brownish color, strong pubescence, and strongly bowed forceps, often with a small tooth.

The typical *L. chalybea* is narrower, the abdomen not dilated, the elytra steel-blue, feebly or not at all pubescent, the forceps unarmed and gently arcuate.

It will be admitted by all that the curvature of the forceps, the intensity of coloration, and strength of the pubescence are unstable characters.

Accordingly, we turn to the pygidium to decide the question. Now, here I am compelled to admit that even the pygidium fails through instability of form.

I possess in my own collection two fine males of the undoubted *L. arcuata* form, both taken by Mr. W. F. H. Rosenberg at an elevation of about 1,000 feet, at Chimbo, in Ecuador, in August, 1897. In one the pygidium is very broad and swollen at each side into a blum, thick tubercle; in another the pygidium is less broad, truncate, with a fine point at each corner. This is the pygidium that we associate with *L. chalybea*, but the general form and color of the body is decidedly that of *L. arcuata*.

I have seen both forms of pygidium also in specimens from Mexico. The small, steel-blue forms which are generally called *L. chalybea* have the two-point pygidium; the *L. arcuata* form has it as often as not. Therefore we can not distinguish the two by the forms of the pygidium of the male.

In Dohrn's original female in the Vienna Museum the pygidium is narrower, bluntly conical, with two minute points at the apex. Two of Caudell's females from Guatemala of the *L. chalybea* form, but labeled *L. arcuata*, have a broader, truncate pygidium, with a fine point at each corner.

Borelli's specimens of *L. chalybea* from Paraguay have the truncate two-point pygidium in the male, but the female has a simple conical pygidium.

If we regard *L. chalybea* as distinct from *L. annulata*, basing our separation on the form of the pygidium, we must disregard the other features of size, color, and pubescence. If we follow them, we must disregard the form of the pygidium.

In his description of *L. arcuata* Scudder refers to the pygidium of the male as "very broad, bifid, with large teeth." Dohrn does not refer to this organ in his description of *L. chalybea*.

In de Bormans' manuscript album, now in my possession, there are colored drawings of the male of each form and outline sketches of

the female. He makes no distinction whatever between the females of the two, and in the males the only distinction lies in the visible pygidium of *L. arcuata*, which it is retracted in *L. chalybea*; so we see that de Bormans had no clear idea of the separation of the two.

But an examination under the microscope of the pygidium of a number of specimens of both sexes from various localities shows that these apparently decisive distinctions in the shape of this organ are merely differences of degree. In some the points are finer than others, or longer, or shorter, sometimes almost obsolete.

When I look at one or two specimens, they seem so distinct that I wonder how I could ever confuse them. When I look at a longer series, I can not make up my mind where to draw the line.

Brunner also felt the uncertainty, for in his collection a number of specimens are placed with the undoubted *L. arcuata* form which are indistinguishable from some labeled *L. chalybea*.

Thus we are compelled to admit that a very uncertain line separates the typical *L. arcuata* form from the typical *chalybea* form. They pass insensibly from one to the other, just as the various races of *L. riparia*. I prefer to regard it as one species, under the name *Labia annulata* Fabricius, with three distinct forms, varieties, races, or subspecies, namely, *arcuata* Scudder, *flaviscuta* Rehn, and *chalybea* Dohrn.

Mexico.—Cordoba, one male (F. Knab); Orizaba, January 9 to 16, 1897 (H. Osborn). Rehn's type of *L. flaviscuta* [1903², p. 305].

Guatemala.—Cacao, Tree Aguas, Alta Vera Paz, two males (Schwarz and Barber). Caudell's originals (1907², p. 173) of *L. arcuata* and *L. chalybea*.

6. PARAGUAYENSIS Caudell.

Paraguay.—Sapucay, two males and two females (W. T. Foster), Cat. No. 8025. Types and syntypes of Caudell [1904, p. 181].

This is a good species, falling into the same group as *L. arachidis* Yersin, and *L. silvestrii* Borelli, characterized by the pyriform or clavate segments of the antennæ. (fig. 1.)

7. MÆKLINI Dohrn.

Santo Domingo.—San Francisco Mountains, one female (Busck) A remarkable pale thin female, apparently new.

This single female resembles specimens in my own collection which were determined by de Bormans as *L. mæklini*; but is somewhat

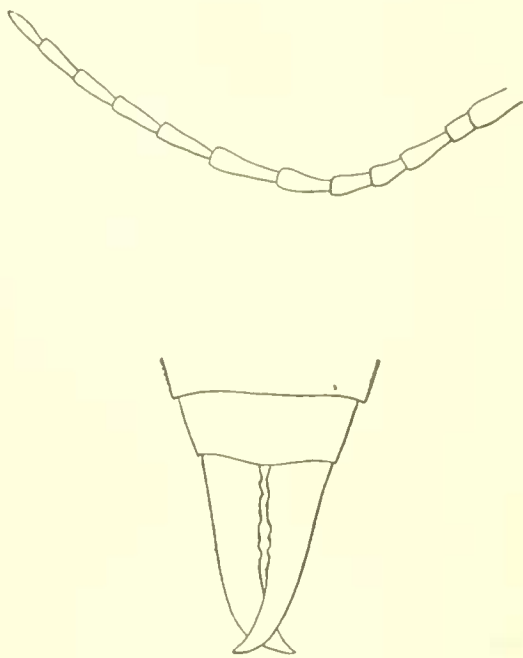


FIG. 1.—ANTENNA AND FORCEPS OF LABIA PARAGUAYENSIS.

narrower and the coloration differs a good deal in detail, though agreeing broadly. Upon color I place no reliance.

8. *MEXICANA* Bormans.

Dominica.—August (Busck).

This specimen agrees well with de Bormans type now in the Hof-Museum, Vienna. It does not seem to be a common species; it is well characterized by the long bifid pygidium of the male.

9. *BREVIFORCEPS* Caudell.

Caudell's type [1907², p. 174] agrees with *L. luzonica* very closely; the pronotum seems a little wider posteriorly (in *luzonica* sides also rounded). The color is a little darker. It also resembles *L. macklini*.

Further material is required before its true affinities can be determined.

10. *TRINITATIS* Bruner.

Trinidad.—June, one male and one female (Busck).

Dominica.—August, one female (Busck).

Cuba.—Cayamas, one male (Schwarz).

Caudell's original [1907¹, p. 169] seems allied with *L. chalybea*, but differs in the redder abdomen, smaller size, narrowed, truncate pygidium, and basally dilated forceps. The females I can hardly distinguish; those from Trinidad and Dominica really seem to be *L. chalybea*, but I refer them here, following Caudell, as they were taken together with the males.

11. *ROTUNDATA* Scudder.

Mexico.—Orizaba, January 9 to 16, 1902 (H. Osborn), one female [Rehn, 1905², p. 306], a bleached female.

Accession No. 20097, male and female.

12. *SCHWARZI* Caudell.

Guatemala.—Cacao, Tree Aguas, Alta Vera Paz, male and female.

This is Caudell's type [1907², p. 173]. The quadrate penultimate ventral segment of the male suggests affinity with the smaller forms of *Spongiphora*, especially with *S. pygmaea*, but the pygidium of the male is rounded, and the fourth antennal segment is short.

13. *MINOR* Linnæus.

Philippines.—Bacor, one female (P. L. Stangl).

14. *AURICOMA* Rehn.

Costa Rica.—Piedras Negras (Schild and Burgdorf), one female. Cat. No. 7080. Type of Rehn [1903¹, p. 292].

This species is unfortunately based upon a single female, and so its true position can not be satisfactorily determined until the male is discovered. The short, stout, conical forceps distinguish it from the female of *L. chalybea*. It is probably allied to *L. rotundata*.

15. *NIGROFLAVIDA* Rehn.

Australia.—Queensland, Cairns (Koebele), Cat. No. 8168, one female. Type of Rehn [1905¹, p. 507].

This is a very distinct species. The male has since been described by me [1908⁴, p. 48].

Genus SPONGIPHORA Serville.

1. INSIGNIS Stål.

Colombia.—Cayenne (William Schaus), a broken specimen.

This is Rehn's type of *Sparatta flavipennula* [1903², p. 306]. I refer it to this species, but it is unfortunate that it is a female.

Caudell [1907², p. 173] refers to *Sparatta flavipennula* two larvæ taken by Messrs. Schwarz and Barber in Guatemala (Cacao, Trece Aguas), but they are certainly not the larvæ of this species. They seem to be of some *Sparatta*, but can not be identified with certainty.

2. BRUNNEIPENNIS Serville.

Georgia.—Morrison (C. V. Riley), one male and one female.

Texas.—*Colombia*, near the Brazos River, "under old leaves," December 15, 1878 (E. A. Schwarz), one male.

3. APICEDENTATA Caudell.

California.—Los Angeles, one male (Coquillett).

Arizona.—"Catalina Springs; *Circus giganteus*." Original syntypes of Caudell [1905, p. 461].

4. GHILIANII Dohrn.

Guatemala.—Cacao, Trece Aguas, Alta Vera Paz (Schwarz and Barber), one male and one female.

Specimens recorded by Caudell [1907², p. 175] as *Spongiphora pygmaea*. I follow Borelli's revision of the group and so refer these specimens to *Spongiphora ghilianii*.

Genus SPARATTA Serville.

?1. PELVIMETRA Serville, var. RUFINA Stål.

Guatemala.—Cacao, Trece Aguas, Alta Vera Paz, one female (Barber).

This is the type of *Cylindrogaster diplatyoides* Caudell [1907², p. 170]. It is certainly a female of some species of *Sparatta*, probably of the above species.

?2. ARMATA Burr.

Guatemala.—Polochic River, March 22 (Schwarz and Barber), Cat. No. 10367.

This specimen is the type of *Sparatta minuta* of Caudell [1907², p. 172], a female, which I refer here.

Family FORFICULIDÆ.

Subfamily CHELISOCHINÆ.

Genus CHELISOCHES Scudder.

1. MORIO Fabricius.

Hawaii.—Honolulu, one female (Ashmead), Hilo, two females (Brenner).

Philippines.—Negros, ten females (Steere Expedition).

Philippines.—Samar, one female (Steere Expedition).

California.—Menlo Park, one male and one female (F. Hornang) introduced.

Lower Siam.—Trong, one female. Rehn's type of *Chelisochea stratioticus* [1905¹, p. 509, fig. 6]. This is only a finely developed race of *Ch. morio*. I have a specimen from Java, and there is one from Travancore in the Madrid Museum.

Genus PROREUS Burr.

1. MINOR Caudell.

Philippines.—Mindoro, Bacoor, January, 1903 (P. L. Stangl), two males. Caudell's type. Cat. No. 7885, U.S.N.M.

The body is not sufficiently depressed to justify the ranging of this species in *Auchenomus*. In the form of the head, it resembles *P. sobrius* Bormans, but differs in smaller size and slender build

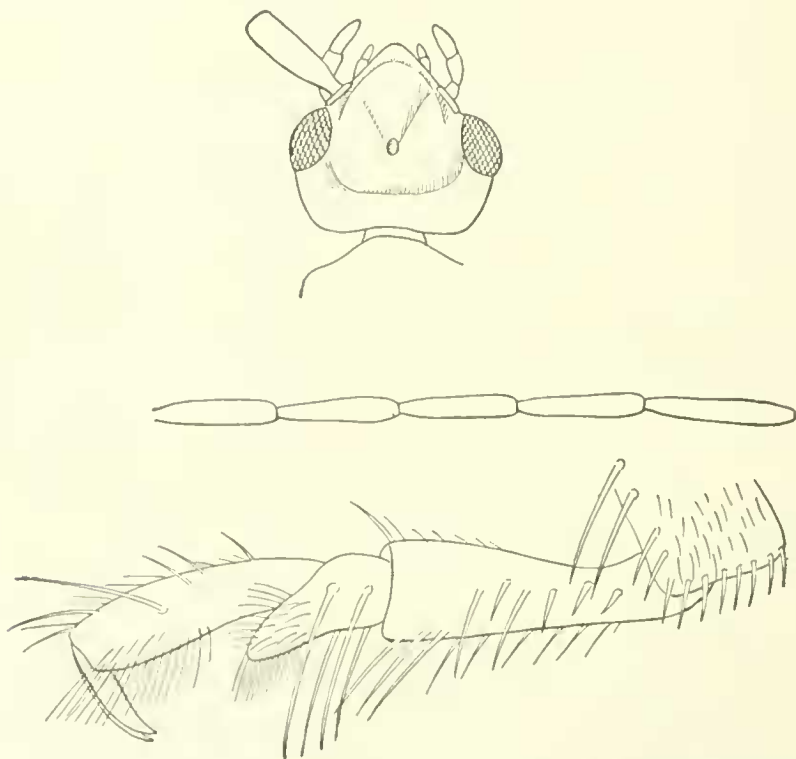


FIG. 2. HEAD, PART OF ANTENNA, AND POSTERIOR TARSUS OF PROREUS MINOR.

and non-transverse pronotum. In the structure of the head it approaches *P. ludkingi* Dohrn, but differs in the shorter pronotum and non-banded elytra; the coloration at once distinguishes it from *P. lactior*, and *P. variopictus* Bormans, to which it is related (fig. 2).

Subfamily NEOLOBOPHORINÆ.

Genus NEOLOBOPHORA Scudder.

1. RUFICEPS Burmans.

Mexico.—Orizaba, January 9 to 16, 1902 (H. Osborn), one male. [Rehn, 1903², p. 310.]

Mexico.—Jalapa, two males (J. T. Mason), 1902. [See Rehn, 1902, p. 2.]

Guatemala.—Cacao, Trece Aguas, Alta Vera Paz, one female (Barber). [Rehn, 1907², p. 175.]

Guatemala.—Secanguin, December, 1905 (G. P. Gold), larva.

Mexico.—Cordoba, one male (Knab).

Costa Rica.—Volcano de Irazu, January, 1902.

Costa Rica.—San José, "on Indian corn," one female (Dr. Gust. Michaud). Accession No. 20097, female.

Subfamily ANCISTROGASTERINÆ.

Genus ANCISTROGASTER Stål.

1. GULOSA Stål.

Mexico.—Cordoba, June 12, male and female (Knab).

Mexico.—Jalapa, January and February, male.

Mexico.—Orizaba, January 16, 1897, male and female (H. Osborn).

2. SPINAX Dohrn.

Guatemala.—Polochu River, one male, October, 1905 (G. P. Gold).
The abdominal spines rather feebly developed.

3. MACULIFERA Dohrn.

Mexico.—Jalapa, January and February, male and female.

4. FALCIFERA Rehn.

=*Ancistrogaster mirta* BORELLI, 1906³, p. 12.

Peru.—Piches and Perene valleys, 2,000 to 3,000 feet (Sociedad geografica de Lima), one male. (Cat. No. 8172.)

Type of Rehn (1905¹, p. 510, fig. 7.)

Mexico.—Cordoba, January 27, 1908, male and female (F. Knab).

This is identical with *A. mirta* Borelli. The slightly differently tinted antennæ, the absence of the small red humeral spot on the elytra and basal spot on the wings, which are present in *A. mirta* are not sufficiently stable characters to justify the discrimination of these two species, and so the name *A. mirta* must be sunk as a synonym (fig. 3).

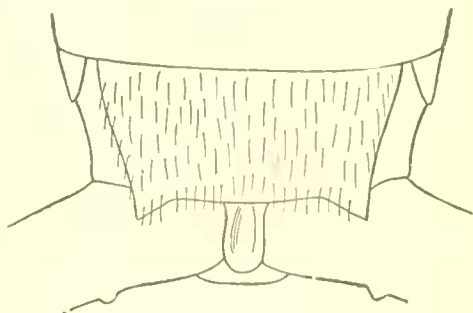


FIG. 3.—PENULTIMATE VENTRAL SEGMENT OF A MALE ANCISTROGASTER FALCIFERA.

5. ——— Species?

Mexico.—Jalapa, January and February, one female.

6. ——— Species?

Peru.—Chanchamarja (Rosenberg), a fragment.

Genus VLAX Burr.

1. TOLTECUS Bormans.

Mexico.—Orizaba, January 9 to 16 (H. Osborn), two males. [See Rehn, 1901, p. 219, and 1903², p. 308.]

Genus PRAOS Burr.

1. PERDITUS Borelli.

Costa Rica.—Volcano Irazu, February 6, 1902, two males.

Genus *OSTEULCUS* Burr.1. *KERVILLEI* Burr.

Venezuela.—Merida, one female.

Subfamily *OPISTHOCOSMIINÆ*.*PILEX*, new genus.

Antennæ? (only the basal segment remains; this is short and stout.)

Head tumid, eyes very large.

Pronotum subquadrate; about as wide as the head and wider than long, and a little broader posteriorly than anteriorly.

Elytra and wings well developed, ample, the former not carinate.

Legs long; first tarsal segment cylindrical, about half as long again as the other two united; second broad, but distinctly longer than broad; third longer than the second, but only about half as long as the first, rather broad.

Abdomen broad, depressed, subparallel.

Last dorsal segment ample, rectangular, transverse about twice as broad as long.

Pygidium distinct, obtuse, transverse.

Forceps with branches remote at the base, elongate.

This genus is erected for *Opisthocosmia bogotensis* Rehn, which falls into the group with noncarinate elytra and broad pronotum; the short third segment of the tarsi connects it with *Eparchus*, *Hypurgus*, and *Skalistes*, but the depressed body, and transverse last dorsal segment, distinguishes it easily.

1. *BOGOTENSIS* Rehn.

Colombia.—Bogota (G. Klages, Cat. No. 8166; Rehn, 1905, p. 511, fig. 3).

This species is figured and well described by Rehn. It has a number of peculiarities which make it easily recognizable. The asperities of the forceps and last dorsal segment, the anchor-shaped depression in the latter, the build and form of forceps, together with the generic characters, are very distinctive.

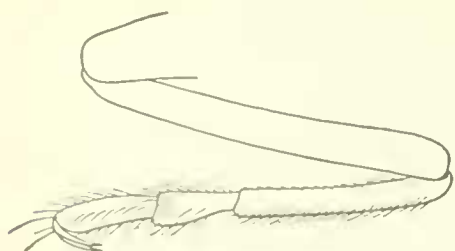


FIG. 4.—HIND LEG OF *PILEX* *BOGOTENSIS*.

The second segment of the tarsi is scarcely lobed, merely a little dilated toward the apex, scarcely more so than the third segment; this is a very striking contrast to certain species of *Eparchus*, as *E. lugens*, where the second segment is almost circular and the third slender.

The large and prominent eyes are very noticeable; as they almost reach the posterior angles of the head, they have an archaic character, recalling the fossil genus *Labiduromma*. The type in the U.S. National Museum is the only known specimen (fig. 4).

Genus *SARCINATRIX* Rehn.

Rehn proposed this as a subgenus in 1903², page 308, for his species *S. anomalia*.

The following year I raised it to generic rank and included in it *Opisthocosmia americana* Bormans and *Sarcinatrix rehnii* Burr.

But an examination of Rehn's type shows that the genus is essentially ancistrogastriine, having not only a feeble, yet distinct, costal keel on the elytra, but the horns of the penultimate ventral segment are merely a highly developed form of the points or lobes of that plate which characterize the subfamily Ancistrogastriinae.

Sarcinatrix therefore remains monotypic, *S. americana* Bormans and *S. rehnii* Burr being removed to a new genus.

1. *ANOMALIA* Rehn.

Costa Rica.—Turrialba and San Carlos, one male and two females (Schild and Burgdorf). Rehn's types [1903², p. 308].

DINEX, new genus.

Abdomen convex, feebly depressed and feebly dilated; antennae with segments cylindrical, fourth longer than third; pronotum nearly square; elytra and wings ample, smooth, former with no keel; tarsi with first and third segments about equally long; last dorsal segment transverse, ample, sloping, not narrowed; penultimate ventral segment transverse, more or less rounded posteriorly.

Type of the genus.—*Opisthocosmia americana* Bormans, 1893 [p. 8, pl. 1, figs. 22-23].

I form this new genus for *Opisthocosmia americana* Bormans and *Sarcinatrix rehnii* Burr, both Neotropical forms. Both of these I formerly included in Rehn's subgenus *Sarcinatrix*, which I raised to generic rank.

But, as I have shown in my remarks on the genus *Sarcinatrix*, the elytra of that genus have a keel, though indistinct, and the penultimate ventral segment of the male has the horns which are characteristic of the *Ancistrogastriinae*.

We must therefore exclude from it the two above-mentioned species which can not fall back into *Opisthocosmia*, which is now a purely oriental genus with a narrow pronotum. A new genus is accordingly required for these two species.

1. *AMERICANA* Bormans.

Guatemala.—Cacao, Trece Aguas, Alta Vera Paz, one male and two females (Schwarz and Barber). Originals of Caudell [1907², p. 175].

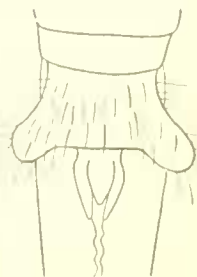


FIG. 5. — PENULTIMATE VENTRAL SEGMENT OF *SARCINATRIX ANOMALIA*, MALE.

2. — Species.

Philippines.—Mindoro, Malabang (Portello), one male in poor condition.

3. — Species.

Philippines.—Mindanao, Marabini, two females.

Genus SKALISTES Burr.

1. LUGUBRIS Dohrn.

Mexico.—Orizaba, January 9 to 16, 1897 (H. Osborn). Rehn's type of *Forficula metrica* [1903², p. 311].



FIG. 6. PROFILE OF FORCEPS (FROM INSIDE) OF MALE SKALISTES LUGUBRIS, VAR. METRICA.

This is only a *macrolabia* variety of *S. lugubris*; the elongation of the forceps has caught the vertical tooth and produced it into a

crest, thus entirely altering the appearance of the creature.

Also typical male and two females from same locality.

2. CACAOENSIS Caudell.

Guatemala.—Cacao, Trece Aguas, Alta Vera Paz, at about 900 feet (Schwarz and Barber). Cat. No. 10370, Caudell's type [1907², p. 175].

This species is related to *S. lugubris*, but the pronotum is less depressed, the elytra smoother and less hairy, the pygidium scarcely discernible, and the forceps are quite different.

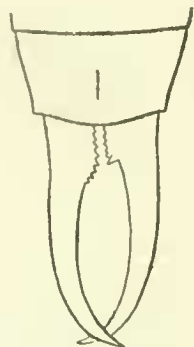


FIG. 7.—FORCEPS OF MALE SKALISTES CACAOENSIS

Subfamily ANECHURINÆ.

Genus ANECHURA Burr.

1. HARMANDI Burr.

Japan.—One male and five females.

This is the typical species of *Odontopsalis* Burr, but I now prefer to consider this as not generically distinct from typical *Anechura*.

CIPEX, new genus.

Build slender.

Antennæ slender and cylindrical, the third and fourth segments about equal.

Pronotum subquadrate, rounded posteriorly.

Elytra not keeled, ample; wings ample.

Sternal plates rather narrow.

Feet short, tarsi shorter than the tibia; all three segments about equal in length; first stout, second strongly dilated, third slender.

Abdomen long and parallel.

Pygidium: male large, tumid, and subglobulose, spined; female, similar, with no spine.

Last dorsal segment, male and female, transverse.

Forceps with branches remote at base, elongate, slender in both sexes, with strong teeth in the male.

This genus is erected for the remarkable earwig from Cuba described under the name of *Forficula schwarzi* Rehn, which is the type.

In spite of the narrow sternal plates and elongate body, it has all the appearance of the *Anechurina*, especially the peculiar pygidium.

It is well characterized by the tarsi, which are quite different from those of any other known genus of the subfamily.

1. SCHWARZI Rehn.

Forficula schwarzi REHN (1905¹), p. 513, fig. 9.

Sphingolabis schwarzi CAUDELL (1907¹), p. 170.

Cuba.—Santiago Province; Cayamas, March 1. One female (Schwarz, Cat. No. 8169, Rehn's type); same locality, one male, May 25 (Schwarz, the original male first described by Caudell).

This elegant species was first described from a single female in poor condition; the abdomen had been broken off and in repairing had been cemented on upside down. The same collector later took a male in the same locality, which is described by Caudell.

An examination of these two specimens, the only ones so far known, shows that the pygidium is, in its essentials, typical of the *Anechurina*, to which subfamily I have little hesitation in referring it.

Superficially, in color and general appearance, it must resemble the little-known *Anechura elongata* Bormans, likewise from Cuba, but the form of the pygidium and forceps is different.



FIG. 8. TARSUS OF CIPEX SCHWARZI.

Subfamily FORFICULINAE.

Genus DORU Burr.

1. LINEARE Escholtz.

Mexico.—Orizaba, May 8, one male (Howard), a large, dark, banded specimen. [Rehn, 1901, p. 219, 1903², p. 310.]

Mexico.—Orizaba, January 9 to 16, 1907 (H. Osborn), a pale, small banded specimen. [Rehn, 1903², p. 310.]

Mexico.—Pancajihi (D. P. Roll), May, 1905; a small, dark specimen.

Guatemala.—Livingtone, February 18, 1905, one female. (Charles C. Dean).

Mexico.—Cordoba, two males; fine, bright, big, dark specimen.

San Salvador.—One female (Knab); a small, dark, yellow specimen.

San Salvador.—Sonsonate, August 19, 1908 (Knab), one male and one female.

Mexico.—Cordoba, one female "at light" (Knab).

Guatemala.—Sapachiti, April, 1902, one female (R. F. Griggs).

Guatemala.—Alta Paz, Secanquin, cotton field, one male (A. MacLachlan).

Mexico.—One female.

Paraguay.—Sapucay, male and female (W. Foster); a small, red male and female. [See Rehn, 1907², p. 151, and Caudell, 1904, p. 181.]

Brazil.—Bonito, Province of Pernambuco, "on cotton," January 5, 1883, three females and a bleached male. Same locality, five females and three males of the *californica* form. [See Rehn, 1903², p. 310.]

Venezuela.—Merida, one male and two females (S. Brieno).

Mexico.—Orizaba, January 9 to 16, 1897 (H. Osborn), var. *californica*; det. Rehn [1903², p. 310].

Texas.—Brownsville, November, 1904 (H. S. Barber), one male, determined by Caudell as *A. exilis*. I do not know the true *exilis*, but consider this identical with the var. *californica*.

Arizona.—Tucson, one male.

Cuba.—Cayamas, one male and one female (Schwarz).

I look upon this as a rather variable and widely distributed species; I consider *teniata*, *luteipes*, and *aculeata* as synonyms; also *californica*, which is a variety; also *gracilis* and *suturalis*; perhaps *exilis* is distinct.

Rehn agrees in regarding *californica* as a mutation. Caudell is right in adopting Eschscholtz's old name.

The development or abbreviation of the wings, the presence or absence of a tooth on the forceps, the intensity of coloration, the breadth of the bands on the elytra, are not features which, in my opinion, justify specific rank. It may be possible to show, when all the available material has been critically examined, that some of the forms are restricted to certain localities, in which case they become local races, or variation in the sense as defined by Staudinger, Tutt, and other lepidopterists.

2. ALBIPES Fabricius.

Santo Domingo.—San Francisco Mountains, two males and one female (Busck).

These are Caudell's original specimens [1907¹, p. 169]. Perhaps *albipes* Fabricius and *bimaculata* Fabricius are identical.

Genus ELAUNON Burr.

1. ERYTHROCEPHALA Olivier.

Liberia.—Mount Coffee (G. P. G.). [See Rehn, 1905¹, p. 513.]

Congo.—Liedo, one male and one fragment.

Genus FORFICULA Linnæus.

1. AURICULARIA Linnæus.

Tasmania.—One male, No. 443 (Webster).

Tasmania.—Nos. 4431 and 744.

Norway.—Kristiania, one female (Strand), Bergen, one female (Strand).

Germany.—Leipzig, November, 1877 (Professor Turner), one female, October 21, 1879, labeled "*F. decipiens*."

Prussia.—Stettin, one female, August, 1898 (Pergande).

Azores.—Flores, male and female (W. Trelease). [See Rehn, 1905¹, p. 543.]

2. DECIPIENS Géné.

Italy.—One female (Leonardi).

"*Europe*."—"From nest of brown tail moth," No. 7567, 1905-6, female.

3. ——— Species?

Peru.—Piches and Perene valleys, 2,000 to 3,000 feet (Sociedad geografica de Lima), one female.

SYNONYMS ESTABLISHED.

Bormansia meridionalis Rehn (not Burr)... = *Karschiella* cf. *camerunensis* Verhoeff.

Labidurodes magnificus Rehn..... = *Allostethus indicum* (Hagenbach).

Echinopsalis brevibractea Rehn.....? = *Pyragra fuscata* Serville, larva.

Pygidierana peruviana Rehn..... = *Pyragra dohrni* Scudder.

Arthrodoctus barberi Caudell..... = a *Pyragrid* larva.

Psalis pulchra Rehn.....? = *Psalis percheron* (Guerin).

Apterygida buscki Rehn..... = *Psalis gagatina* Klug, var.

Anisolabis minuta Caudell..... = *Borellia stáli* (Dohrn).

Brachylabis nigra Caudell (not Scudder)... = *Leptisolabis howardi*, new species.

Labia pulchella Serville..... =

Labia guttata Scudder..... =

Labia burgessi Scudder..... =

Labia melancholica Scudder..... =

Labia flaviscuta Rehn..... =

Labia chalybea Dohrn..... =

Labia arcuata Scudder..... =

Sparatta flavipennula Rehn..... = *Spongiphora insignis* (Stål).

Spongiphora pygmaea Caudell (not Dohrn). = *Spongiphora ghilianii* Dohrn.

Cylindrogaster diplatyoides, Caudell..... = *Sparatta pelymetra* Scudder, var. *rufina* Stål.

Chelisothes stratioticus Rehn..... = *Chelisothes morio* Fabricius, var.

Sparatta minuta Caudell..... = *Sparatta armata* Burr.

Ancistrogaster mixta Borelli..... = *Ancistrogaster falcifera* Rehn.

Forficula metrica Rehn..... = *Skalistes lugubris* (Dohrn, var.).

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